

REMARKS

I. Status of the Claims

Claims 1-31 are pending and stand rejected. Claims 1, 21, 22, and 29-31 have been amended to write out the abbreviation “UV” as “ultraviolet.” Claims 13-15 have been amended to clarify that the subject matter of claims 13-15 is the same as the claims from which they depend, *i.e.*, the claims define synthetic polymer gels. These amendments are supported by the specification and claims as originally filed.

Accordingly, no new matter has been added.

II. Rejections under 35 U.S.C. § 112

The Examiner rejects claims 1-31 under 35 U.S.C. § 112, second paragraph “as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.” Office Action at 2. In particular, the Examiner asserts that the “abbreviation ‘UV’ should be replaced with ‘ultraviolet’ because the abbreviation renders the claims indefinite.” *Id.* Although Applicant respectfully disagrees with the Examiner, solely in the interest of advancing prosecution, Applicant has amended claims 1, 21, 22, and 29-31 to replace the abbreviation “UV” with “ultraviolet.” Accordingly, Applicant respectfully requests that this reason for rejection be withdrawn as moot.

The Examiner also rejects claims 13-15 as being indefinite because they recite a method while claim 12, from which the claims depend, recites a synthetic polymer gel. Thus, the Examiner concludes that “it is not clear whether application intends to claim a gel or a method.” *Id.* Applicant has amended claims 13-15 to recite the “synthetic polymer gel according to the” claim from which each depends. Thus it is clear that

claims 13-15 define a synthetic polymer gel. Accordingly, Applicant respectfully requests the withdrawal of this reason for rejection as moot.

In addition, the Examiner rejects claims 25, 26, 28, and 31 as being indefinite, taking issue with the phrase “chosen from pigments, fillers and nacre particles,” stating that it should be amended to read either “chosen from pigments, fillers, or nacre particles,” or “selected from the group consisting of pigments, fillers and nacre particles.” *Id.* Applicant respectfully disagrees with the Examiner and traverses for at least the following reason.

The phrase "X is chosen from A, B, and C" is proper language and more accurately describes the claimed invention, *i.e.*, the composition may contain one or more X with each X independently selected from the group A, B, and C. For example, both Applicant's claim language and the Examiner's proposed changes cover a composition of the invention that may contain: A; A and B; or two A's, two, B's, and a C, as well as all other permutations. Applicant's claim language is clear, and provides no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. Moreover, the Examiner has shown no legal basis, nor does any exist, for requiring Applicant to change it.

Furthermore, the U.S. Patent and Trademark Office has provided representative examples of proper alternative claim language similar to Applicant's claim language. Specifically, Applicant directs the Examiner to an example of proper alternative claim language set forth in the M.P.E.P.: "wherein R¹ is methyl or phenyl, X and Z are selected from oxygen (O) and sulfur (S)." See M.P.E.P. Appendix AI (PCT), Example

20, pp. AI-66 of the May 2004 edition. For at least these reasons, this rejection is in error and Applicant respectfully requests its withdrawal.

II. Rejections under 35 U.S.C. § 102

A. U.S. Patent No. 6,262,141 to Cywar et al.

The Examiner rejects claims 1-24 and 29 under 35 U.S.C. § 102(b) as allegedly "being anticipated by Cywar et al." (U.S. Patent No. 6,262,141) ("Cywar"). Office Action at 3. Specifically, the Examiner asserts that Cywar "disclose[s] a method for preparing an acrylic polymer comprising preparing an aqueous solution of an acrylic monomer, a photoinitiator, and a persulfate compound, thermally polymerizing the monomer and irradiating with UV light to reduce residual monomer by further polymerization. Gel particles are disclosed." *Id.* Applicant respectfully disagrees with the Examiner and traverses for at least the following reasons.

A claim is anticipated under 35 U.S.C. § 102(b) only if each and every element as set forth in the claim is found in a single reference. See *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) and M.P.E.P. § 2131. Furthermore, the identical invention must be set forth in as complete detail as it appears in the claim. See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) and M.P.E.P. § 2131. Cywar cannot be said to anticipate the present invention because it does not disclose each and every element of the present claims.

1. Method claims 1-10, and 21-23

These method claims of the present invention recite a method for "for producing a synthetic polymer gel comprising formulating an aqueous solution comprising at least one persulfate and at least one water-soluble vinyl monomer having an acryloyl

structure, and irradiating said aqueous solution with UV light." See, e.g, claim 1.

Contrary to the Examiner's assertions, *Cywar* does not disclose the presently claimed method. Rather, the method taught by *Cywar* is a multi-step process comprising first forming a gelled polymer and a photoinitiator in the absence of applied UV light, then comminuting the gelled polymer into gel particles, and then irradiating the gel particles. Not only does *Cywar* not teach the method of the present claims, it actually teaches away from the claimed method since it specifically excludes the use of UV light in the first step, which is recited in the presently claimed method.

Accordingly, this rejection is in error and Applicant respectfully requests its withdrawal.

2. Product-by-process claims 11-20 and 29

With respect to the product-by-process claims of the present invention, the Examiner asserts that the "burden is hereby shifted to applicant to establish by effective argument and/or objective evidence that the prior art product(s) or process(es) do not necessarily possess the characteristics of the claimed products or processes." Office Action at 7. Applicant respectfully disagrees and traverses this rejection, for at least the reason that *Cywar* does not teach or disclose all claim limitations. A product-by-process claim is a claim to a product limited by the process elements. See *Atlantic Thermoplastics Co., Inc. v. Faytex Corp.*, 970 F.2d 834 (Fed. Cir. 1992).

Cywar does not teach a synthetic polymer gel produced in the presence of a persulfate and with UV radiation. Rather, *Cywar* teaches a polymer produced by a multi-step process comprising first forming a gelled polymer and a photoinitiator in the

absence of applied UV light, then comminuting the gelled polymer into gel particles, and then irradiating the gel particles. Not only does *Cywar* not teach the synthetic gel of the present claims, it actually teaches away from the claimed gel since it specifically excludes the use of UV light in the first step.

Accordingly, this rejection is in error and Applicant respectfully requests its withdrawal.

B. RO 115805

The Examiner rejects claims 11-20 under 35 U.S.C. § 102(b) as allegedly “being anticipated by RO 115805 B (Abstract)” (“RO’805”) Office Action at 3. The Examiner asserts that the “product obtained by the method taught by RO ‘805 in the Abstract would be expected to be the same product as is instantly claimed because the same monomers are being polymerized in aqueous solution in the presence of a persulfate initiator.” *Id.* The Examiner acknowledges that RO ‘805 uses gamma radiation rather than the presently claimed UV radiation, but concludes that “[s]ince either kind of radiation would be expected to activate the persulfate initiator and the monomers being polymerized are the same, the products would be expected to be the same, in the absence of evidence to the contrary.” *Id.* at 4.

Applicant respectfully disagrees with the Examiner, and traverses for at least the reason that RO ‘805 does not contain every limitation of the claimed products. The Examiner’s conclusion that either UV or gamma radiation “would be expected to activate the persulfate initiator,” is both inaccurate and the wrong legal standard to apply when determining anticipation. As discussed above, a claim is anticipated under 35 U.S.C. § 102(b) only if each and every element as set forth in the claim is found in a

single reference. RO '805 does not disclose UV radiation, and thus it cannot be said to anticipate claims 11-20.

Moreover, one of skill in the art would know that gamma radiation is "the most intense form of short-wave radiation." Hawley's Condensed Chemical Dictionary, fourteenth edition, at 525 (definition of gamma). On the other hand, UV radiation ranges from 100 to 3900 angstrom in wavelength, leading up to the visible light spectrum. Accordingly, UV radiation is much less intense than gamma radiation, and one of skill in the art would not necessarily expect both forms to work interchangably.

Thus, for at least the foregoing reasons, RO '805 does not anticipate claims 11-20, and Applicants respectfully request that this rejection be withdrawn.

C. U.S. Patent No. 6,691,715 to Matz et al.

The Examiner rejects claims 11-20, 29, and 30 under 35 U.S.C. § 102(e) as allegedly "being anticipated by Matz et al" (U.S. Patent No. 6,691,715) ("Matz"). Office Action at 4. Specifically, the Examiner asserts that Matz "teach[es] conventional solution polymerization techniques to polymerize acrylic and/or acrylamide monomers in the presence of sodium persulfate to provide products for cosmetic use or for applications involving fillers (column 11, line 64, to column 12, line 50, and column 6, lines 55-64)." *Id.* The Examiner admits that Matz does not mention UV radiation, but concludes that the "products obtained by the thermal solution polymerization method taught by Matz et al. would be expected to be the same as the products obtained by the instantly claimed method because the same monomers are being polymerized in aqueous medium in the presence of a persulfate initiator." *Id.*

Applicant respectfully disagrees with the Examiner, and traverses the rejection for at least the reason that *Matz* does not contain every limitation of the claimed products. For example, *Matz* teaches water soluble polymers and not a synthetic polymer gel as recited in the claims. Additionally, as discussed above, in order to qualify as an anticipation rejection, every element of the claim must be taught, including the UV radiation. Since the Examiner has admitted that *Matz* does not teach UV radiation, then *Matz* cannot be said to anticipate claims 11-20, 29, and 30. Accordingly, this rejection is in error and Applicant respectfully requests its withdrawal.

D. U.S. Patent No. 6,691,715 to Dobbs

The Examiner rejects claims 11-20, 24, and 28-31 under 35 U.S.C. § 102(b) as allegedly “being anticipated by Dobbs” (U.S. Patent No. 6,691,715) (“*Dobbs*”). Office Action at 4. In particular, the Examiner states that *Dobbs* “discloses a cosmetic film forming composition consisting of an aqueous emulsion (A) and aqueous emulsion (B). See Example 3 for an emulsion B polymerized in the presence of ammonium persulfate.” *Id.* The Examiner admits that *Dobbs* does not teach UV radiation, but concludes that the “products obtained by the method of polymerization taught by Dobbs would be expected to be the same as the products obtained by the instantly claimed method because the same monomers are polymerized in aqueous emulsion in the presence of a persulfate initiator.” *Id.*

Applicant respectfully disagrees with the Examiner and traverses the rejection for at least the reason that *Dobbs* does not contain every limitation of the claimed products. Specifically, *Dobbs* teaches a film-forming composition comprising two different aqueous emulsions and a freeze-thaw agent. Thus not only does *Dobbs* not teach the

product-by-process presently claimed, it does not even teach the product, a synthetic polymer gel as presently claimed.

Accordingly, Applicant respectfully asserts that this rejection is in error and should be withdrawn.

E. U.S. Patent No. 4,604,411 to Yada et al.

The Examiner rejects claims 11-20 and 29 under 35 U.S.C. § 102(b) as allegedly “being anticipated by Yada et al.” (U.S. Patent No. 4,604,411) (“Yada ‘411”). Office Action at 4. In particular, the Examiner asserts that Yada ‘411 “disclose[s] a process for preparing sticky polymers from acrylic and/or acrylamide monomers,” and “thermally activatable initiators such as persulfates for thermal polymerization and photoinitiators for photopolymerization.” *Id.* at 4-5. The Examiner admits that Yada ‘411 does not teach photopolymerization in the presence of persulfate initiators. Regardless, the Examiner concludes that “the gel polymers produced by the process disclosed by Yada et al. would be expected to be the same as the gel polymers produced by the instantly claimed process, in the absence of evidence to the contrary.” *Id.*

Applicant respectfully disagrees with the Examiner, and traverses the rejection for at least the reason that Yada ‘411 does not contain every limitation of the claimed products. For example, Yada ‘411 does not teach or disclose a synthetic gel produced by UV radiation in the presence of persulfate, as is presently claimed. Moreover, the present claims are directed towards a synthetic gel, whereas Yada ‘411 is directed towards a film.

Accordingly, Applicant respectfully asserts that this rejection is in error and should be withdrawn.

F. U.S. Patent No. 4,690,788 to Yada et al.

The Examiner rejects claims 11-20 and 29 under 35 U.S.C. § 102(b) as allegedly “being anticipated by Yada et al.” (U.S. Patent No. 4,690,788) (“Yada ‘788”). Office Action at 5. Specifically, the Examiner asserts that Yada ‘788 “disclose[s] a process for preparing polymer gel particles from acrylic and/or acrylamide monomers,” and “thermally activatable initiators such as persulfates for thermal polymerization and photoinitiators for photopolymerization.” *Id.* The Examiner admits that Yada ‘788 does not teach photopolymerization in the presence of persulfate initiators. However, the Examiner concludes that “the gel polymers produced by the process disclosed by Yada [‘877] et al. would be expected to be the same as the gel polymers produced by the instantly claimed process, in the absence of evidence to the contrary.” *Id.*

Applicant respectfully disagrees with the Examiner, and traverses the rejection for at least the reason that Yada ‘877 does not contain every limitation of the claimed products. In particular, Yada ‘877 does not teach or disclose production of a synthetic polymer gel by UV radiation in the presence of persulfate. Without containing such a teaching, Yada ‘877 cannot be said to anticipate the present claims.

Accordingly, Applicant respectfully asserts that this rejection is in error and should be withdrawn.

G. U.S. Patent No. 5,519,088 to Itoh et al.

The Examiner rejects claims 11-22, 24, and 28-31 under 35 U.S.C. § 102(b) as allegedly “being anticipated by Itoh et al.” (U.S. Patent No. 5,519,088) (“Itoh ‘088”). Office Action at 5. Specifically, the Examiner asserts that Itoh ‘088 “disclose[s] aqueous gels comprising a polymer of (methy)acrylamide, particulate metal oxide, and an

aqueous medium," and that "polymerization can be initiated by exposure to high energy rays, by using a polymerization initiator or by exposure to high energy rays in the presence of a polymerization initiator. Example 18 disclosed a persulfate as a thermal initiator." *Id.* at 5-6. The Examiner admits that *Itoh* '088 does not teach photopolymerization in the presence of persulfate initiators. However, the Examiner concludes that "the gel polymers produced by the process disclosed by Itoh et al. would be expected to be the same as the gel polymers produced by the instantly claimed process, in the absence of evidence to the contrary." *Id.* at 6.

Applicant respectfully disagrees with the Examiner, and traverses the rejection for at least the reason that *Itoh* '088 does not contain every limitation of the claimed products. In particular, *Itoh* '088 does not disclose a synthetic polymer gel produced by UV radiation in the presence of persulfate. Without containing such a teaching, *Itoh* '088 cannot be said to anticipate the present claims.

Accordingly, Applicant respectfully asserts that this rejection is in error and should be withdrawn.

H. U.S. Patent No. 4,865,886 to Itoh et al.

The Examiner rejects claims 11-22, 24, and 28-31 under 35 U.S.C. § 102(b) as "being anticipated by Itoh et al." (U.S. Patent No. 4,865,886) ("*Itoh* '886"). Office Action at 6. Specifically, the Examiner asserts that *Itoh* '886 "disclose[s] aqueous gels comprising a polymer of (meth)acrylamide, a fibrous substrate, and an aqueous medium. Persulfate initiators are taught . . . [and] [h]igh energy radiation is taught." *Id.* The Examiner admits that *Itoh* '886 does not teach photopolymerization in the presence of persulfate initiators. Regardless, the Examiner concludes that "the gel polymers

produced by the process disclosed by Itoh et al. ['886] would be expected to be the same as the gel polymers produced by the instantly claimed process, in the absence of evidence to the contrary." *Id.*

Applicant respectfully disagrees with the Examiner, and traverses this rejection for at least the reason that *Itoh* '886 does not contain every limitation of the claimed products. In particular, *Itoh* '886 does not teach a synthetic gel polymer produced by UV radiation in the presence of persulfate. Without containing such a teaching, *Itoh* '886 cannot be said to anticipate the present claims. Moreover, Applicant believes the "water absorptive composite material" taught by *Itoh* '886 to be different from the synthetic polymer gel as claimed due to the additional cross-linking step required in *Itoh* '886.

Accordingly, Applicant respectfully asserts that this rejection is in error and should be withdrawn.

I. U.S. Patent No. 3,963,685 to Abrahams

The Examiner rejects claims 11-20 under 35 U.S.C. § 102(b) as allegedly "being anticipated by Abrahams" (U.S. Patent No. 3,963,685) ("Abrahams"). Office Action at 6. Specifically, the Examiner asserts that Abrahams "discloses a hydrophilic water-insoluble, organic solvent soluble polymer prepared by polymerizing a hydroxyalkyl methacrylate in water . . . that a chemical initiator can be obviated by utilizing irradiation . . . [and] that a free radical catalyst, such as potassium persulfate, can be used." *Id.*

Despite the fact that *Abrahams* does not teach UV radiation in the presence of a persulfate initiator, the Examiner concludes that the "polymers produced by the process

disclosed by Abrahams would be expected to be the same as the polymers produced by the instantly claimed process, in the absence of evidence to the contrary.” *Id.* at 6-7.

Applicant respectfully disagrees with the Examiner, and traverses this rejection for at least the reason that *Abrahams* does not contain every limitation of the claimed products. In particular, *Abrahams* does not teach or disclose a synthetic gel polymer produced by UV radiation in the presence of persulfate. Without containing such a teaching, *Abrahams* cannot be said to anticipate the present claims.

Accordingly, Applicant respectfully asserts that this rejection is in error and should be withdrawn.

III. Rejections under 35 U.S.C. § 103(a)

The Examiner rejects claims 1-10, 21, 23, and 25-27 as allegedly “being unpatentable over Itoh et al. ([U.S. Patent No.] 5,519,088), in view of Cywar et al. ([U.S. Patent No.] 6,262,141).” Office Action at 7. In particular, the Examiner asserts that “Itoh et al. teach that polymerization can be initiated by exposure to high energy rays, by using a polymerization initiator or by exposure to high energy rays in the presence of a polymerization initiator.” *Id.* The Examiner admits that “Itoh et al do not specifically teach photopolymerization in the presence of persulfate initiators.” *Id.* at 8.

Accordingly, the Examiner cites Cywar to cure the deficiencies of *Itoh '088*, stating that Cywar discloses “a method for preparing an acrylic polymer comprising preparing an aqueous solution of an acrylic monomer, a photoinitiator and a persulfate compound, thermally polymerizing the monomer and irradiating with UV light to reduce the residual monomer by further polymerization.” *Id.* Thus, the Examiner concludes that it “would have been obvious to one skilled in the art at the time of the invention to

combine the redox system using a persulfate initiator and the photopolymerization system using UV light taught by Itoh et al., as suggested by Cywar et al. in an analogous method fro [sic] preparing analogous polymers.” *Id.*

Applicant respectfully disagrees with the Examiner and traverses this rejection. The Examiner has failed to establish a *prima facie* showing of obviousness, at least because *Itoh* '088 and *Cywar* do not teach or disclose every element of the present claims. In order to establish a *prima facie* case of obviousness, the Examiner must show, among other things, that the reference teaches or suggests all of the claim limitations. See M.P.E.P. § 2143. *Itoh* '088 and *Cywar* combined do not teach or disclose all of the claimed elements of independent claim 1 and 21.

Specifically, *Itoh* '088 and *Cywar* combined still do not teach or disclose a method of making a synthetic polymer gel comprising “formulating an aqueous solution comprising at least one persulfate and at least one water-soluble vinyl monomer having an acryloyl structure, and irradiating said aqueous solution with UV light.” As discussed above, *Cywar* teaches a multi-step process, first forming a polymer gel using a persulfate in the dark, and then subsequently irradiating the polymer gel, and *Itoh* '088 does not teach the use of persulfate together with UV radiation. The combination of the two references does not cure these deficiencies.

Moreover, the disclosure of *Cywar* actually teaches away from the presently claimed method because the use of a persulfate initiator is done in the dark. A reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must also be considered. See *Bausch & Lomb, Inc. v. Barnes Hind/Hydrocurve, Inc.*, 796 F.2d 443 (Fed. Cir. 1986). “A reference may be said

to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551 (Fed. Cir. 1994). Due to the teaching of persulfates polymerizing in the dark in *Cywar*, one of ordinary skill in the art would not be motivated to combine the teachings of *Itoh* '088 and *Cywar* to create a synthetic polymer gel as claimed. Accordingly, the rejection under 35 U.S.C. § 103(a) of the method claims is in error and Applicant respectfully requests its withdrawal.

With respect to the product claims, *Itoh* '088 and *Cywar* combined do not teach a synthetic polymer gel produced according to the process claimed. As discussed above, we believe the Examiner is treating the product-by-process claims as product claims, which are viewed as being independently patentable, regardless of the process used. This standard is contrary to the holding in *Atlantic Thermoplastics*, which is still good case law. See *Atlantic Thermoplastics Co., Inc. v. Faytex Corp.*, 970 F.2d 834 (Fed. Cir. 1992). Accordingly, the rejection under 35 U.S.C. § 103(a) of the product-by-process claims is in error and Applicant respectfully requests its withdrawal.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration of this application, and the timely allowance of the pending claims.

If the Examiner believes a telephone conference could be useful in resolving any of the outstanding issues, she is respectfully urged to contact Applicant's undersigned counsel at 202-408-4368.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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